

Damage patterns brick masonry

Damage pattern	Damage process	Photo of the damage pattern
Loss of material in parts, at the surface or of whole stones	Loss of adhesion: Loss of small, compact particles up to complete loss	
	Spalling: Scale off of compact particles	
	Layers peel off: Thin, flat particles peel off parallel to the ground surface	
	Layers peel off: Thin layers less than 1 mm parallel to the ground surface	

	<p>Layers peel off: Thick layers of some millimeters up to centimeters parallel to the ground surface</p>	
	<p>Separation of major, compact pieces</p>	
	<p>Bonding failure between brick and mortar</p>	
<p>White coating at the surface</p>	<p>Material attachment: Blooming (crystal salts on or in the stone and/or mortar)</p>	

<p>Discoloured stones, sometimes with little cracks and deposits</p>	<p>Surface weathering with discolouration, fading, deposits, patina crustification</p>	
<p>Greening on stones and broken or porous mortar joints</p>	<p>Biological greening through moss, algae, lichenic, plants (grass, bushes, trees, one season plants, perennial herbs)</p>	
<p>Cracks in stones or in the joint net</p>	<p>Shrinking and expansion because of temperature changes</p>	
<p>Decomposition of materials (stone or joints)</p>	<p>Decomposition of materials (stone or joints)</p>	

<p>Capillary cracks in the stone</p>	<p>Single cracks in the stone, less than 0.15mm</p>	
<p>Net-like cracks with typical net pattern on the stone surface</p>	<p>Net-like cracks in the stone, less than 0.15mm</p>	
<p>Radial cracks on the stone surface</p>	<p>Radial cracks, more than 0.15mm</p>	
<p>Frame-like projecting joint mortar</p>	<p>Uneven weathering of stones and mortar</p>	
<p>Voids in the joint net</p>	<p>Decomposition of mortar chunks, destabilising of the brickwork bond</p>	
<p>Mortar cracks and disconnection of stones</p>	<p>Diverse cracks because of insufficient bond of mortar and stones</p>	
<p>Cracks in the brick facade of a cavity wall</p>	<p>Cracks mostly in the flank area</p>	

<p>Cracks in the facing masonry</p>	<p>Corrosion of the wire ties</p>	
<p>Chip off at stones (view also <i>Loss of material</i>)</p>	<p>Bursting effect because of frozen water in the stones</p>	
<p>Chip off at stones (view also <i>Loss of material</i>)</p>	<p>Bursting effect because of frozen water in the stones</p>	
<p>Pieces of joint mortar fall down</p>	<p>Bursting effect because of frozen water in the masonry mortar</p>	

<p>Moisture in brickwork (as first damage image)</p>	<p>Soaking of the brickwork</p>	
<p>Adhesion loss between stones and joints; joint image sustainably changed</p>	<p>Dust film on stone sides prevent further adhesion</p>	
<p>Porous stone surface</p>	<p>Sandblasting or other cleaning methods damage the stone skin</p>	
<p>Loss of material or salt deposit at the stone surface (see above)</p>	<p>Increased moisture and salt transport into the stone</p>	